# JAGATPUR P.G. COLLEGE, VARANASI

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| **SUBJECT** | **:** | **COMMERCE** |
| **CLASS** | **:** | **B.Com** |
| **YEAR** | **:** | **I - YEAR** |
| **NAME OF THE PAPER** | **:** | **IV- Business Economics** |
| **NAME OF TOPIC** | **:** | **Production Function, Law of Variable Proportion & Return to Scale.** |

**Key Words : Law of production, Law of Diminishing Return, Optimum Factors Combination**

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Production function means the technological relationship between physical inputs and physical quantities of output In other words it shows that with a given state of technalogical knowledge and during a particular period of time how much can be produced with given amount of Inputs.

According to Watson, "The relationship between a Firm's Physical production (output) and the material factors of production (input) is referred to as production function."

**Types of Production Functions**

i. Short Run Production Function

ii. Long Run Production Function

**Laws of Production :**

There are two types of law of productions –

i. Law of variable proportions
ii. Law of Return to Scale

**Law of variable Proportion as Law of Diminishing Returns**

In short period when the output of a product is sought to be increased by way of additional application of the variable factors to a given quantity of fixed factors, law of variable proportions comes into operation.

Acording to F. Benham – "As the proportion of one factor in a combination of factors is increased. After a point, first the marginal and then the averages product of that factor will diminish."

**Returns to Scale**

In the preceding chapter, we have discussed the law of variable proportions. Under this law we studied the behaviour of output when the producer varied on factor, keeping all the other factors fixed. It was related to input output relationship in the short period.

In the long period all the factors of production are variable and an increase in output is possible by increasing all the inputs.

**Types of Returns to Scale**

There are three types of Returns to scale:

i) Law of Increasing Returns

ii) Law of Decreasing Returns

iii) Law of Constant Returns

**1. Law of Increasing Return :**

It is the first stage of production when a proportionate increase in all factors of production results in a more than proportionate increase in output.

2. **Law of Decreasing Return :**

It implies that a proportionate increase in all factors of production results in a less than proportionate increase in output. In this case doubling of all inputs results in les than double the output.

### 3. Law of Constant Return

Constant Returns to Scale Refers to the production situation in which output increases exactly in the same proportion in which factors of production are increased. In simple terms, if factors of production are doubled out put will also be doubled.

## THE EXPANSION PATH

We have explained above which factor combination a firm will choose to produce a specified level of output, give the prices of the two factors. But this is taking a static view of the firm's problem. The firm may like to expand the size of the output by increasing its outlay on the two inputs. Given the increased total cost outlay. In short the level of total output of a firm increases with increase in its financial Resources, which of the optimum combinations of factors will be used by the firm at different levels of output is indicated by expansion path.

Expansion path can be shows as follows :

i) How the produces changes his factor combination when he expends his output.

ii) Shows the least cost combination of factors for producing each given level of output.

**Related questions :**

1. What is meant by production functions?
2. Discuss the Law of variable proportions.
3. What are the causes of diminishing return?.
4. What law of constant return?

**References :**


1. V.C. Sinha- Business  Economics

2. J.P. Mishra – Business Economics

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**THANK YOU**